Claim Listing

1–6. (cancelled)

7. (new) A method for coating a surface of a web comprising papermaking fibers with a coating powder, comprising the steps of:

forming a coating power from a selected inorganic material and a polymeric binder material, wherein the step of forming comprises selecting the polymeric binder material such that it has a characteristic glass transition temperature and exhibits a rubbery state plateau above the characteristic glass transition temperature, and at the glass transition temperature the selected polymeric binder material defines a dynamic modulus, which has a first elastic component G' and a first loss component G", wherein the ratio between the first loss component G" and the first elastic component G' defines a first loss factor, and wherein when the selected polymeric binder material is heated above the characteristic glass transition temperature, the selected polymeric binder material defines a second dynamic modulus, which has a second elastic component G' and a second loss component G" wherein the ratio between the second loss component G" and the second elastic component G' defines a second loss factor, and wherein the second loss factor is less than or equal to the first loss factor when the temperature is in the a rubbery state plateau;

moving the web between electrodes which are in different potentials;

applying the coating powder on the surface of the web by utilizing the difference in the electric potential; and

finishing the coated surface of the web in a process which reaches a maximum process temperature greater than the characteristic glass transition temperature of the selected polymeric binder material.

8. (new) The method of claim 7, wherein the second loss factor is at the most one in the rubbery state plateau.

9. (new) The method of claim 7, wherein the second loss factor is at the most one between the glass transition temperature and the maximum process temperature.

10. (new) The method of claim 7, wherein the elastic modulus component is at least 1.0×10^5 Pa in a temperature range which is below the maximum process temperature.

11. (new) The method of claim 7, wherein the second loss factor in the rubbery state plateau is at the most 80 percent of the value of the first loss factor.

12. (new) The method of claim 11, wherein the second loss factor in the rubbery state plateau is at the most 50 percent of the value of the first loss factor.

13. (new) A method of formulating a paper coating and applying the coating to a paper web comprising the steps of:

selecting a polymeric binder based on the criteria that the polymeric binder has the following properties:

a characteristic glass transition temperature,

a rubbery state plateau above the characteristic glass transition temperature,

a dynamic modulus, which has an elastic component and a loss component,

wherein the ratio of the loss component to the elastic component defines a loss factor, wherein the loss factor of the polymeric binder at a temperature above the glass transition temperature and in the rubbery state plateau is less than or equal to the loss factor at the glass transition temperature; and

combining the selected polymeric binder with a selected inorganic material and forming a coating powder therefrom;

moving the paper web between two electrodes at different potentials;

applying the coating on the surface of the paper web by utilizing the difference in potential of the two electrodes; and

heating the paper web and the coating on the surface of the paper web in a nip formed between two rolls, or in a long nip formed between two counter surfaces, to a process temperature of between 80–350°C, at a linear load of between 25–450 kN/m and at a dwell time of between 0.1–100 ms; and wherein the process temperature is above the characteristic glass transition temperature.

14. (new) The method of claim 13, wherein the loss factor is at most one between the glass transition temperature and the maximum process temperature.

15. (new) The method of claim 13, wherein the elastic modulus component is at least 1.0×10^5 Pa in a temperature range which is below the maximum process temperature.

16. (new) The method of claim 13, wherein the loss factor in the rubbery state plateau is at the most 80 percent of the value of the loss factor at the glass transition temperature.

17. (new) The method according to claim 16, wherein the loss factor in the rubbery state plateau is at the most 50 percent of the value of the loss factor at the glass transition temperature.